1 **IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

2

3 APPLICATION NO.: 10/712,902   EXAMINER: Merant, Guerrier

4 FILED: 11/12/2003   ART UNIT: 2117

5 INVENTOR: John Warren Maly   CONFIRMATION NO.: 9445

6 ATTORNEY DOCKET NUMBER: 200207608-1

7

8 <u>**APPEAL BRIEF UNDER 37 CFR § 41**</u>

9

10 Commissioner for Patents

11 PO Box 1450

12 Alexandria, VA 22313-1450

13

14 Dear Sir:

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16   An appeal is taken from the decision of the examiner mailed 12/01/2008. A

17 Notice of Appeal is being filed concurrently, in accordance with 37 CFR § 41.31.

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REAL PARTY IN INTEREST

The real party in interest for the application is Hewlett-Packard Development Company, L.P., a Texas limited partnership that is a wholly-owned affiliate of Hewlett-Packard Company, a Delaware corporation headquartered in Palo Alto, CA.

RELATED CASES

A prior Appeal Brief for the present application (10/712,902) was filed on 03/14/2008. In response, a non-final Office Action was mailed on 05/28/2008. There are no other related cases.

JURISDICTIONAL STATEMENT

The Board has jurisdiction under 35 USC § 134(a). The examiner mailed a final rejection on 12/01/2008, setting a three-month shortened statutory period for response. The time for responding to the final rejection expires on 03/01/2009. A Notice of Appeal is being filed concurrently with this Appeal Brief on 01/27/2009.

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TABLE OF AUTHORITIES

None

STATUS OF AMENDMENTS

No amendments have been filed after the final rejection.

GROUNDS OF REJECTION

(1) Rejection of claims 4 and 22 under 35 USC §101 as directed to non-statutory subject matter.

(2) Rejection of claims 1, 4, and 6-28 under 35 USC § 103(a) as being unpatentable over US Patent Number 5,903,475 (Gupte) in view of US Patent Number 3,614,606 (Giedd).

STATEMENT OF FACTS

1. In the rejection of claims 1 and 23-28, for the element of "creating a transaction record corresponding to said input signal", the examiner cites Gupte, column 9, lines 8-13, which reads as follows: "The Vector Capture program generates two output modules: a capture module 354 and a test bench module 356. The capture module is an HDL file that is utilized during a system simulation 358

1 to capture the input and output vectors around the ASIC. Typically, the system

2 simulation utilizes a behavioral HDL representation of the ASIC."

3

4 2. In the rejection of claims 1 and 23-28, for the element of "generating an

5 expected output signal, corresponding to said transaction record", the examiner

6 cites Gupte, column 9, lines 13-18; column 6, lines 41-64; column 7, lines 20-35;

7 column 8, lines 56-67; column 9, lines 1-57; column 10, lines 5-10.

8 Column 9, lines 13-18 read as follows: "Typically, the system simulation

9 utilizes a behavioral HDL representation of the ASIC. During system simulation

10 358, the output vectors of the ASIC are captured as "golden" vectors 360. The

11 golden vectors represent the output of the ASIC during system simulation."

12 Column 6, lines 41-64 describe producing the behavioral design

13 specifications of an ASIC, which is then simulated within the customer's system

14 environment.

15 Column 7, lines 20-35 describe simulating an ASIC in a stand-alone

16 environment, and in a customer's system environment, and comparing the outputs.

17 Column 8, lines 56-67 are part of a file in Verilog HDL for the I/O

18 specifications of an ASIC.

19 Column 9, lines 1-57 discuss capturing the input and output vectors around

20 an ASIC during system simulation, and then using those captured vectors in a

1 stand-alone simulation. Also discussed is Fig. 6, which is high level flow chart of

2 the vector capture program.

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4   3. In the rejection of claims 1 and 23-28, the examiner cites Giedd, abstract,

5 for signaling an error if an agent did not produce an output signal correctly.

6   Giedd, abstract, teaches applying a test pattern to a logic circuit under test,

7 and an identical test pattern to a reference logic circuit, comparing the outputs of

8 the test circuit and the reference circuit, and generating an error signal when the

9 two outputs are not matched.

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11   4. In the rejection of claim 7, for the element of "monitoring at least one

12 input of a memory agent", the examiner cites Gupte, figures 2-9; column 6, lines

13 41-64; column 7, lines 20-35; column 8, lines 56-67, column 9, lines 1-57; column

14 10, lines 5-10.

15   Figures 2-9 illustrate a system and method for simulation of a system that

16 includes an ASIC as part of the system, and capturing simulated signals to the

17 simulated ASIC, and capturing simulated outputs from the simulated ASIC, for use

18 in a stand-alone simulation of just the ASIC.

19   Each of the citations to the text in Gupte is discussed in Statement of Facts

20 #2.

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2   5. In the rejection of claim 13, for the element of "creating a transaction

3   record to contain information relating to a memory transaction involving said

4   agent", the examiner cites Gupte, column 15, lines 35-50.

5   Gupte, column 15, lines 35-50 describes compilation of simulation code and

6   determining which modules to add to a library to be synthesized, and whether

7   modules should be compiled separately or in groups.

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9   6. In the rejection of claim 15, for the element of "program code for storing

10   expected data associated with said expectation, said expected data being received

11   in a plurality of separate incoming transmissions in said stimulus, said expected

12   data being expected to be transmitted by said agent in a plurality of separate

13   outgoing transmissions in said event", the examiner cites Gupte, column 18, lines

14   19-39.

15   Gupte, column 18, lines 19-39 describe execution of an expert system that in

16   turn checks out the proper version of HDL simulation code and runs the code.

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ARGUMENT

(1) REJECTION OF CLAIMS 4 AND 22 UNDER 35 USC §101 AS DIRECTED

TO NON-STSTUTORY SUBJECT MATTER.

CLAIM 4

In response to the examiner's rejection of claim 4 under 35 USC § 101 for

the first time in the final rejection dated 12/01/2008, page 3, appellant's response

includes a new argument which has not been previously presented to the examiner,

as follows:

Claim 4 specifies an apparatus comprising at least one computer readable

medium. In the Office Action dated 12/01/2008, page 3, the examiner asserts that

claim 4 is "directed to an intangible means such as an infrared transmission." The

claim is not limited to infrared transmission or "intangible means". The

specification at page 32, line 23 through page 33, line 14, contains a list of

examples of storage media, including magnetic disks, optical disks, and

semiconductor memory devices. The mere fact that one example embodiment in

the specification may be non-statutory does not make a claim non-statutory for all

possible embodiments. From MPEP 2106(C), limitations appearing in the

1   specification but not recited in the claim should not be read into the claim. The

2   examiner has not cited any authority for a claim interpretation limiting the claim to

3   a single embodiment among many, and has not cited any authority for rejecting a

4   claim under 35 USC § 101 just because one example embodiment among many

5   examples in the specification may be non-statutory.

6

7   CLAIM 22

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9   In response to the examiner's rejection of claim 22 under 35 USC § 101 for

10   the first time in the final rejection dated 12/01/2008, page 3, appellant's response

11   includes a new argument which has not been previously presented to the examiner,

12   as follows:

13   In the Office Action dated 12/01/2008, page 3, regarding claim 22, the

14   examiner asserts: "There are no physical devices for performing the functionalities

15   of the claim. Therefore, the claim is directed to an intangible means such as

16   software per se." First, the examiner has not accurately stated the legal threshold

17   for a 35 USC § 101 analysis. Second, the examiner appears to be incorrectly

18   asserting that software is per se unpatentable. Third, Claim 22 is written in means

19   plus function format. From MPEP 2106(C), and MPEP 2181(II), a claim in means

20   plus function format is construed to cover the corresponding structure described in

1 the specification and equivalents thereof. From page 4, lines 22-34, the term

2 "architecture" refers to the structure and organization of a memory agent in a

3 computer system, and that of software and firmware in a computer system,

4 including the instruction set of a processor in a computer system. From page 5,

5 lines 3-11, the term "agent" refers to any component in a system that receives

6 incoming signals or transaction and generates outgoing signals or events as a

7 result. In one example embodiment, the agent comprises a memory agent in a

8 computer system. From page 5, lines 12-20, a transaction corresponds to an entire

9 memory operation. From page 5, lines 21-25, the checker may be a software

10 application or may be an electronic circuit.

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12 (2) REJECTION OF CLAIMS 1, 4, AND 6-28 UNDER 35 USC § 103(A) AS

13 BEING UNPATENTABLE OVER US PATENT NUMBER 5,903,475 (GUPTE)

14 IN VIEW OF US PATENT NUMBER 3,614,606 (GIEDD).

15

16 CLAIMS 1, 4, 6, 22 AND 23

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18 For purposes of this appeal only, and regarding the rejection under 35 USC §

19 103(a) only, claims 4, 6, 22, and 23 stand or fall with claim 1.

1   In response to the examiner's rejection of claims 1, 4, and 22 under 35 USC

2   § 103(a) as being unpatentable over Gupte and Giedd, appellant's response

3   includes a new argument which has not been previously presented to the examiner,

4   as follows:

5   Exemplary language for claims 1, 4 and 22 may be found in claim 1, as

6   follows. Claim 1 specifies: ". . . creating a transaction record corresponding to said

7   input signal; generating an expected output signal, corresponding to said

8   transaction record, based at least in part on said input signal; . . ..".

9   Gupte and Giedd, individually or combined, do not teach or suggest creating

10   a transaction record corresponding to the input signal. For the element of a

11   transaction record, the examiner cites Gupte, column 9, lines 8-13, which is

12   reproduced in the section entitled "Statement of Facts". The citation describes a list

13   of inputs. A list of input signals is not equivalent to a transaction record. A

14   transaction record is more than just a list of input signals. From the specification of

15   the present application, page 4, lines 17-18, a transaction record holds data relating

16   to a transaction. From page 6, lines 9-11, each transaction record contains an

17   expectation list vector for storing expectation records associated with that

18   transaction record. From page 16, lines 11-13, entries in the transaction record

19   include a Transaction ID. Accordingly, a transaction record is more than just a list

20   of input signals.

1   Gupte and Giedd, individually or combined, do not teach or suggest

2   generating an expected signal corresponding to a transaction record. From the

3   specification of the present invention, page 5, a transaction corresponds to an entire

4   memory operation. From pages 20 and 21, inputs may comprise multiple parts and

5   expected output(s) may not be generated until sufficient parts of the input stimulus

6   are received (multiple input signals). Accordingly, expected outputs are generated

7   based on transactions (the transaction record), not just a single input signal.

8

9   CLAIM 7

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11   In response to the examiner's rejection of claim 7 under 35 USC § 103(a) as

12   being unpatentable over Gupte and Giedd, appellant's response includes a new

13   argument which has not been previously presented to the examiner, as follows:

14   Claim 7 is as follows: The apparatus of claim 4, wherein said program code

15   for monitoring said at least one input of said agent for said stimulus comprises

16   program code for monitoring at least one input of a memory agent for said

17   stimulus, said stimulus being selected from a group consisting of an initial request

18   to perform a memory operation, a snoop response, and a read response. See, for

19   example, page 5, lines 12-17.

1   Gupte and Giedd, individually or combined, do not teach or suggest

2   monitoring stimuli to a memory agent, and do not teach or suggest a stimulus

3   selected from the group consisting of an initial request to perform a memory

4   operation, a snoop response, and a read response.

5   In the Office Action dated 12/01/2008, page 6, regarding claim 7, for the

6   element of monitoring stimuli to a memory agent, the examiner cites Gupte,

7   column 6, lines 41-64; column 7, lines 20-35, column 8, lines 56-67; column 9,

8   lines 1-57, and column 10, lines 5-10. The cited portions of Gupte have no

9   relevance to what is claimed in claim 7. None of the cited portions of Gupte teach

10   or suggest anything about a memory agent. Column 6, lines 41-64 and column 7,

11   lines 20-35 merely refer to an ASIC, with no suggestion that the ASIC might be a

12   memory agent. Column 8, lines 56-67 are portions of a file containing the I/O

13   specifications of a ASIC, with no suggestion that the ASIC might be a memory

14   agent. Column 9, lines 1-57 and column 10, lines 5-10 discuss the vector capture

15   program during system simulation, with no suggestion that the simulated ASIC

16   might be a memory agent.

17   In the Office Action dated 12/01/2008, page 6, regarding claim 7, last

18   element, the examiner cites Gupte, column 15, lines 3-24. The cited portion of

19   Gupte has no relevance to what is claimed in claim 7. The cited portion of Gupte is

20   discussing which gates in the module should be synthesized or skipped over, and

13

1   has absolutely no relationship to an initial request to perform a memory operation,

2   a snoop response, or a read response.

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4   CLAIMS 8-10

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6   For purposes of this appeal only, claims 9 and 10 stand or fall with claim 8.

7   In response to the examiner's rejection of claim 8 under 35 USC § 103(a) as

8   being unpatentable over Gupte and Giedd, appellant's response includes a new

9   argument which has not been previously presented to the examiner, as follows:

10   Claim 8 is as follows: The apparatus of claim 4, wherein said program code

11   for monitoring said at least one input of said agent for said stimulus comprises

12   program code for identifying said stimulus using correlative information in said

13   stimulus. For example, see page 28, lines 2-13.

14   Gupte and Giedd, individually or combined, do not teach or suggest program

15   code for identifying a stimulus using correlative information from the stimulus.

16   In the Office Action dated 12/01/2008, page 5, the examiner groups claims

17   4, 6, 8, 11 and 22, but the examiner only discusses the limitations of claims 4 and

18   22 without addressing the additional limitations of claim 8. The examiner does not

19   discuss or present any argument for the element of "program code for identifying

20   said stimulus using correlative information in said stimulus". The examiner does

1. not cite Gupte or Giedd for this element. No *prima facie* case for obviousness has

2. been established.

3.

CLAIMS 11 AND 12

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6. For purposes of this appeal only, claim 12 stands or falls with claim 11.

7. In response to the examiner's rejection of claim 11 under 35 USC § 103(a) as

8. being unpatentable over Gupte and Giedd, appellant's response includes a new

9. argument which has not been previously presented to the examiner, as follows:

10. Claim 11 is as follows: The apparatus of claim 4, wherein said program code

11. for monitoring said at least one input of said agent for said stimulus comprises

12. program code for gathering said stimulus from a plurality of separately transmitted

13. portions. See, for example, page 21, lines 7-24.

14. Gupte and Giedd, individually or combined, do not teach or suggest program

15. code for gathering a stimulus from a plurality of separately transmitted portions.

16. In the Office Action dated 12/01/2008, page 5, the examiner groups claims

17. 4, 6, 8, 11 and 22, but the examiner only discusses the limitations of claims 4 and

18. 22 without addressing the additional limitations of claim 11. The examiner does

19. not discuss or present any argument for the element of "program code for gathering

20. said stimulus from a plurality of separately transmitted portions ". The examiner

1 does not cite Gupte or Giedd for this element. No *prima facie* case for obviousness

2 has been established.

3

4 CLAIMS 13 AND 14

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6   For purposes of this appeal only, claim 14 stands or falls with claim 13.

7   In response to the examiner's rejection of claim 13 under 35 USC § 103(a) as

8 being unpatentable over Gupte and Giedd, appellant's response includes a new

9 argument which has not been previously presented to the examiner, as follows:

10   Claim 13 is as follows: The apparatus of claim 4, wherein said program code

11 for creating a transaction record comprises program code for creating a transaction

12 record to contain information relating to a memory transaction involving said

13 agent. See, for example, page 4, lines 17-20; page 5, lines 12-20; page 6, lines 9-

14 11; page 6, line 33 to page 7, line 6.

15   Gupte and Giedd, individually or combined, do not teach or suggest creating

16 a transaction record to contain information relating to a memory transaction

17 involving said agent.

18   Regarding the element "creating a transaction record to contain information

19 relating to a memory transaction involving said agent", the examiner cites Gupte,

20 column 15, lines 35-50. The cited portion of Gupte has no relevance to what is

1 claimed in claim 13. The cited portion of Gupte describes details of compilation of

2 simulation code, and has nothing to do with transaction records or memory

3 transactions during testing. No *prima facie* case for obviousness has been

4 established.

5

6 CLAIMS 15 - 21

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8 For purposes of this appeal only, claims 16-21 stand or fall with claim 15.

9 In response to the examiner's rejection of claim 15 under 35 USC § 103(a) as

10 being unpatentable over Gupte and Giedd, appellant's response includes a new

11 argument which has not been previously presented to the examiner, as follows:

12 Claim 15 is as follows: The apparatus of claim 4, wherein said program code

13 for producing said expectation of said event comprises program code for storing

14 expected data associated with said expectation, said expected data being received

15 in a plurality of separate incoming transmissions in said stimulus, said expected

16 data being expected to be transmitted by said agent in a plurality of separate

17 outgoing transmissions in said event. See, for example, page 21, lines 7-25.

18 Gupte and Giedd, individually or combined, do not teach or suggest program

19 code for storing expected data associated with said expectation, said expected data

20 being received in a plurality of separate incoming transmissions in said stimulus,

1 said expected data being expected to be transmitted by said agent in a plurality of

2 separate outgoing transmissions in said event.

3 Regarding claim 15, the examiner cites Gupte, column 18, lines 19-39. The

4 cited portion of Gupte has no relevance to what is claimed in claim 15. The cited

5 portion of Gupte describes execution of an expert system for simulation, and has

6 nothing to do with data associated with an expectation, and nothing to do with the

7 data being received in a plurality of incoming transmissions, and nothing to do

8 with expected data being expected to be transmitted by said agent in a plurality of

9 separate outgoing transmissions.

10

11 CLAIM 24

12

13 In response to the examiner's rejection of claim 24 under 35 USC § 103(a) as

14 being unpatentable over Gupte and Giedd, appellant's response includes a new

15 argument which has not been previously presented to the examiner, as follows:

16 Claim 24 is as follows: The method of claim 1, where the step of signaling

17 an error further comprises signaling an error when said expected output does not

18 occur within a predetermined time. From page 18, lines 23-26, the checker may

19 impose a time limit on event expectations, so that if an event is not generated

20 within the time limit, the checker may signal an error.

1   Gupte and Giedd, individually or combined, do not teach or suggest

2   signaling an error when the expected output does not occur within a predetermined

3   time.

4   In the Office Action dated 12/01/2008, pages 4 and 5, regarding claims 23-

5   28, the examiner states that Gupte does not explicitly teach signaling an error if the

6   agent or device does not produce said output correctly, and asserts that Giedd

7   produces an error if the agent did not produce the output signal correctly. The

8   examiner has not properly characterized the limitations of claim 24. Claim 24 is

9   more specific than just claiming that the agent did not produce the output signal

10   correctly. Claim 24 specifies that the expected output does not occur with a

11   predetermined time. The examiner has not cited any portion of Gupte or Giedd in

12   which a predetermined time for an expected output determines whether there is an

13   error. There is no teaching or suggestion in Gupte or Giedd, individually or

14   combined, for signaling an error when said expected output does not occur within a

15   predetermined time. No *prima facie* case for obviousness has been established.

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1   CLAIM 25

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3   In response to the examiner's rejection of claim 25 under 35 USC § 103(a) as

4   being unpatentable over Gupte and Giedd, appellant's response includes a new

5   argument which has not been previously presented to the examiner, as follows:

6   Claim 25 is as follows: The method of claim 1, where the step of signaling

7   an error further comprises signaling an error when no transaction record can be

8   identified for an output. From page 7, lines 25-29, and page 18, lines 2-4, if no

9   transaction record is found corresponding to a outgoing event, then the checker

10   signals that the event was generated without a triggering stimulus.

11   Gupte and Giedd, individually or combined, do not teach or suggest

12   signaling an error when no transaction record can be identified for an output.

13   In the Office Action dated 12/01/2008, pages 4 and 5, regarding claims 23-

14   28, the examiner states that Gupte does not explicitly teach signaling an error if the

15   agent or device does not produce said output correctly, and asserts that Giedd

16   produces an error if the agent did not produce the output signal correctly. The

17   examiner has not properly characterized the limitations of claim 25. Claim 25 is

18   more specific than just claiming that the agent did not produce the output signal

19   correctly. Claim 25 specifies signaling an error when no transaction record can be

20   identified for an output. The examiner has not cited any portion of Gupte or Giedd

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1 in which an error is determined by receiving an output for which there is no

2 corresponding transaction record. There is no teaching or suggestion in Gupte or

3 Giedd, individually or combined, for signaling an error when no transaction record

4 can be identified for an output. No *prima facie* case for obviousness has been

5 established.

6

7 CLAIM 26

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9   In response to the examiner's rejection of claim 26 under 35 USC § 103(a) as

10 being unpatentable over Gupte and Giedd, appellant's response includes a new

11 argument which has not been previously presented to the examiner, as follows:

12   Claim 26 is as follows: The method of claim 1, where the step of signaling

13 an error further comprises signaling an error when a transaction record for an

14 output is not recognized. From the specification of the present application, page 7,

15 lines 30 - 34, page 21, lines 26-30, if the Transaction ID of outgoing data does not

16 match the Transaction ID of the expected event, then the Transaction ID of the

17 outgoing data is not recognized.

18   Gupte and Giedd, individually or combined, do not teach or suggest

19 signaling an error when a transaction record for an output is not recognized.

1   In the Office Action dated 12/01/2008, pages 4 and 5, regarding claims 23-

2   28, the examiner states that Gupte does not explicitly teach signaling an error if the

3   agent or device does not produce said output correctly, and asserts that Giedd

4   produces an error if the agent did not produce the output signal correctly. The

5   examiner has not properly characterized the limitations of claim 26. Claim 26 is

6   more specific than just claiming that the agent did not produce the output signal

7   correctly. Claim 26 specifies signaling an error when a transaction record for an

8   output is not recognized. The examiner has not cited any portion of Gupte or Giedd

9   in which an error is determined by receiving an output for which there is no

10   corresponding transaction record. There is no teaching or suggestion in Gupte or

11   Giedd, individually or combined, for signaling an error when a transaction record

12   for an output is not recognized. No *prima facie* case for obviousness has been

13   established.

14

15   CLAIM 27

16

17   In response to the examiner's rejection of claim 27 under 35 USC § 103(a) as

18   being unpatentable over Gupte and Giedd, appellant's response includes a new

19   argument which has not been previously presented to the examiner, as follows:

1   Claim 27 is as follows: The method of claim 1, where the step of signaling

2   an error further comprises signaling an error when a transaction record for an

3   output signal corresponds to said transaction record corresponding to said input

4   signal, but said output signal is not expected. From the specification of the present

5   application, page 19, lines 25-27, if the expectation record of outgoing data does

6   not correspond to the transaction ID, then the outgoing data was not expected.

7   Gupte and Giedd, individually or combined, do not teach or suggest

8   signaling an error when a transaction record for an output signal corresponds to the

9   transaction record corresponding to the input signal, but the output signal is not

10   expected.

11   In the Office Action dated 12/01/2008, pages 4 and 5, regarding claims 23-

12   28, the examiner states that Gupte does not explicitly teach signaling an error if the

13   agent or device does not produce said output correctly, and asserts that Giedd

14   produces an error if the agent did not produce the output signal correctly. The

15   examiner has not properly characterized the limitations of claim 27. Claim 27 is

16   more specific than just claiming that the agent did not produce the output signal

17   correctly. Claim 27 specifies signaling an error when a transaction record for an

18   output signal corresponds to said transaction record corresponding to said input

19   signal, but said output signal is not expected. The examiner has not cited any

20   portion of Gupte or Giedd in which an error is determined by whether a transaction

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1   record for an output signal corresponds to a transaction record corresponding to an

2   input signal, but the output signal is not expected. There is no teaching or

3   suggestion in Gupte or Giedd, individually or combined, for signaling an error

4   when a transaction record for an output signal corresponds to said transaction

5   record corresponding to said input signal, but said output signal is not expected. No

6   *prima facie* case for obviousness has been established.

7

8   CLAIM 28

9

10   In response to the examiner's rejection of claim 28 under 35 USC § 103(a) as

11   being unpatentable over Gupte and Giedd, appellant's response includes a new

12   argument which has not been previously presented to the examiner, as follows:

13   Claim 28 is as follows: The method of claim 1, where the step of signaling

14   an error further comprises signaling an error when a transaction record for an

15   output signal corresponds to said transaction record corresponding to said input

16   signal, but said output signal is generated before said input signal is complete.

17   From the specification of the present application, page 21, line 32 through page 22,

18   line 2, and figure 4, 96, the checker may generate an error indicating that an event

19   was created before the stimulus was complete.

1   Gupte and Giedd, individually or combined, do not teach or suggest

2   signaling an error when a transaction record for an output signal corresponds to

3   said transaction record corresponding to said input signal, but said output signal is

4   generated before said input signal is complete.

5   In the Office Action dated 12/01/2008, pages 4 and 5, regarding claims 23-

6   28, the examiner states that Gupte does not explicitly teach signaling an error if the

7   agent or device does not produce said output correctly, and asserts that Giedd

8   produces an error if the agent did not produce the output signal correctly. The

9   examiner has not properly characterized the limitations of claim 28. Claim 28 is

10   more specific than just claiming that the agent did not produce the output signal

11   correctly. Claim 28 specifies signaling an error when a transaction record for an

12   output signal corresponds to said transaction record corresponding to said input

13   signal, but said output signal is generated before said input signal is complete. The

14   examiner has not cited any portion of Gupte or Giedd in which an error is

15   determined by whether a transaction record for an output signal corresponds to said

16   transaction record corresponding to said input signal, but said output signal is

17   generated before said input signal is complete. There is no teaching or suggestion

18   in Gupte or Giedd, individually or combined, for signaling an error when a

19   transaction record for an output signal corresponds to said transaction record

1   corresponding to said input signal, but said output signal is generated before said

2   input signal is complete. No *prima facie* case for obviousness has been established.

3

4   **CONCLUSION**

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6   ·   In view of the above, the applicant respectfully requests that the examiner's

7   final rejection of claims 1, 4, and 6-28 be overruled and withdrawn by the Board,

8   and that the application be allowed to issue as a patent with all pending claims.

9

10   Respectfully submitted,

11

12   KLAAS, LAW, O'MEARA & MALKIN, P.C.

13

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19

20   Date: January 27, 2009

21

APPENDIX (A)

CLAIMS

1.   (rejected) A computer implemented method of verifying events generated by an agent, said method comprising:

detecting an input signal at an input of said agent;

creating a transaction record corresponding to said input signal;

generating an expected output signal, corresponding to said transaction record, based at least in part on said input signal; and

signaling an error when said agent does not generate said expected output signal corresponding to said transaction record.

2-3   (canceled)

4.   (rejected) An apparatus for producing expectations to verify events generated by an agent; comprising:

a. at least one computer readable medium; and

b. computer readable program code stored on said at least one computer readable medium, said computer readable program code comprising:

1   i.   program code for monitoring at least one input of said agent for

2   a stimulus;

3   ii.   program code for creating a transaction record corresponding to

4   said stimulus;

5   iii.   program code for generating an expectation of an event,

6   corresponding to said transaction record, based at least in part

7   on said stimulus, wherein said event is expected to be generated

8   by said agent as a result of said stimulus; and

9   iv.   program code for signaling an error when said agent does not

10   generate said event corresponding to said transaction record.

11

12   5.   (Cancelled)

13

14   6.   (rejected) The apparatus of claim 4, further comprising program code for

15   signaling an error if said event is detected at said at least one output for which no

16   expectation has been produced.

17

18   7.   (rejected) The apparatus of claim 4, wherein said program code for

19   monitoring said at least one input of said agent for said stimulus comprises

20   program code for monitoring at least one input of a memory agent for said

1 stimulus, said stimulus being selected from a group consisting of an initial request

2 to perform a memory operation, a snoop response, and a read response.

3

4 8.   (rejected) The apparatus of claim 4, wherein said program code for

5 monitoring said at least one input of said agent for said stimulus comprises

6 program code for identifying said stimulus using correlative information in said

7 stimulus.

8

9 9.   (rejected) The apparatus of claim 8, wherein said correlative information

10 comprises a transaction identification.

11

12 10.   (rejected) The apparatus of claim 8, wherein said correlative information

13 comprises an address of memory being accessed by said stimulus and an identity of

14 a source of said stimulus.

15

16 11.   (rejected) The apparatus of claim 4, wherein said program code for

17 monitoring said at least one input of said agent for said stimulus comprises

18 program code for gathering said stimulus from a plurality of separately transmitted

19 portions.

20

1   12.   (rejected) The apparatus of claim 11, wherein said program code for

2   gathering said stimulus from said plurality of separately transmitted portions

3   comprises program code for establishing a watch list, said watch list containing an

4   entry for each stimulus for which said separately transmitted portions are being

5   awaited, and wherein said program code for monitoring said at least one input of

6   said agent for said stimulus comprises:

7   program code for detecting one of said separately transmitted portions

8   at said at least one input;

9   program code for searching said watch list for said stimulus for which

10   said one of said separately transmitted portions was being awaited; and

11   program code for adding said one of said separately transmitted

12   portions to said stimulus.

13

14   13.   (rejected) The apparatus of claim 4, wherein said program code for creating

15   a transaction record comprises program code for creating a transaction record to

16   contain information relating to a memory transaction involving said agent.

17

18   14.   (rejected) The apparatus of claim 13, wherein said program code for

19   producing said expectation of said event further comprises:

1   program code for creating an expectation record to contain

2   information relating to an expected event from said agent; and

3   program code for associating said expectation record with said

4   transaction record.

5

6   15.   (rejected) The apparatus of claim 4, wherein said program code for

7   producing said expectation of said event comprises program code for storing

8   expected data associated with said expectation, said expected data being received

9   in a plurality of separate incoming transmissions in said stimulus, said expected

10   data being expected to be transmitted by said agent in a plurality of separate

11   outgoing transmissions in said event.

12

13   16.   (rejected) The apparatus of claim 15, further comprising:

14   program code for comparing said expected data with actual data in

15   said event;

16   program code for signaling an error if said expected data does not

17   match said actual data; and

18   program code for signaling an error if said actual data is not expected.

19

1   17.   (rejected) The apparatus of claim 15, further comprising program code for

2   signaling an error if any of said plurality of separate outgoing transmissions is

3   detected before all of said plurality of separate incoming transmissions have been

4   received.

5

6   18.   (rejected) The apparatus of claim 15, wherein said program code for

7   monitoring said at least one output of said agent for said event begins monitoring

8   said at least one output for said plurality of separate outgoing transmissions as soon

9   as a first of said plurality of separate incoming transmissions has been received.

10

11   19.   (rejected) The apparatus of claim 18, wherein said program code for storing

12   said expected data comprises identifying said first of said plurality of separate

13   incoming transmissions using correlative information in said first of said plurality

14   of separate incoming transmissions and further comprising identifying subsequent

15   transmissions of said plurality of separate incoming transmissions by their being

16   contiguously transmitted on a same input of said agent as said first.

17

18   20.   (rejected) The apparatus of claim 19, wherein said same input of said agent

19   comprises a same physical and virtual input channel.

20

1   21.   (rejected) The apparatus of claim 18, wherein said program code for storing

2   said expected data comprises identifying each of said plurality of separate

3   incoming transmissions using correlative information in said each of said plurality

4   of separate incoming transmissions to enable gathering and sorting of interleaved

5   transmissions belonging to different stimuli.

6

7   22.   (rejected) An apparatus for testing an agent in a computer system,

8   comprising:

9   means for detecting at least one incoming message as it is received by

10   said agent;

11   means for generating a transaction record corresponding to said

12   incoming message;

13   means for generating at least one expected outgoing message,

14   correlated to said transaction record, that should be produced by said agent

15   in response to said incoming message, wherein said at least one expected

16   outgoing message is generated at least in part based on said at least one

17   incoming message; and

18   means for signaling an error when said agent does not generate said

19   expected outgoing message corresponding to said transaction record.

20

1   23.   (rejected) The method of claim 1, where the step of signaling an error further

2   comprises signaling an error when said expected output does not occur.

3

4   24.   (rejected) The method of claim 1, where the step of signaling an error further

5   comprises signaling an error when said expected output does not occur within a

6   predetermined time.

7

8   25.   (rejected) The method of claim 1, where the step of signaling an error further

9   comprises signaling an error when no transaction record can be identified for an

10   output.

11

12   26.   (rejected) The method of claim 1, where the step of signaling an error further

13   comprises signaling an error when a transaction record for an output is not

14   recognized.

15

16   27.   (rejected) The method of claim 1, where the step of signaling an error further

17   comprises signaling an error when a transaction record for an output signal

18   corresponds to said transaction record corresponding to said input signal, but said

19   output signal is not expected.

20

1 28. (rejected) The method of claim 1, where the step of signaling an error further

2 comprises signaling an error when a transaction record for an output signal

3 corresponds to said transaction record corresponding to said input signal, but said

4 output signal is generated before said input signal is complete.

5

<u>APPENDIX (B)</u>

<u>CLAIM SUPPORT AND DRAWING ANALYSIS</u>

3

4   1.   A computer implemented method {**Figs 2-8**} of verifying events

5   generated by an agent {**Fig. 1, 12**}, said method comprising:

6   detecting {**Fig. 2, 50**} an input signal at an input of said agent {**Page 4, lines**

7   **13-16**};

8   creating {**Fig. 2, 50**} a transaction record {**Page 4, lines 17-20; Page 5, lines**

9   **12-20; Page 6, lines 9-11, Page 16, lines 11-13**} corresponding to said input

10   signal;

11   generating {**Fig. 2, 52**} an expected output signal, corresponding to said

12   transaction record {**Page 4, lines 17-26; Page 6, lines 9-11**}, based at least in part

13   on said input signal ; and

14   signaling {**Fig. 2, 60, 66; Fig. 4, 94, 100, 104; Fig. 6, 136; Fig. 8, 166, 172**}

15   an error when said agent does not generate said expected output signal

16   corresponding to said transaction record {**Page 7, lines 25-34; Page 18, lines 3-4,**

17   **lines 23-26; Page 19, lines 25-27; Page 21, lines 26-30; Page 21, line 32 to Page**

18   **22, line 2**}.

19

20

1 4. An apparatus for producing expectations to verify events generated by an

2 agent; comprising:

3   a. at least one computer readable medium **{page 32, line 23 through page**

4   **33, line 14}{not explicitly illustrated in the figures}**; and

5   b. computer readable program code stored on said at least one computer

6   readable medium, said computer readable program code comprising:

7   i.   program code for monitoring at least one input of said agent for

8   a stimulus **{Fig. 2, 50} {Page 4, lines 13-16}**;

9   ii.   program code for creating a transaction record corresponding to

10   said stimulus **{Fig. 2, 50} {Page 4, lines 17-20; Page 5, lines**

11   **12-20; Page 6, lines 9-11, Page 16, lines 11-13}**

12   iii.   program code for generating an expectation of an event,

13   corresponding to said transaction record, based at least in part

14   on said stimulus, wherein said event is expected to be generated

15   by said agent as a result of said stimulus **{Fig. 2, 52} {Page 4,**

16   **lines 17-26; Page 6, lines 9-11}**; and

17   iv.   program code for signaling an error when said agent does not

18   generate said event corresponding to said transaction record

19   **{Fig. 2, 60, 66} {Page 7, lines 25-34; Page 18, lines 3-4, lines**

23-26; Page 19, lines 25-27; Page 21, lines 26-30; Page 21,
line 32 to Page 22, line 2}.

7.   The apparatus of claim 4, wherein said program code for monitoring said at

least one input of said agent for said stimulus comprises program code for

monitoring at least one input of a memory agent for said stimulus **{Page 9, lines 8-**

10} {not explicitly illustrated in the figures}, said stimulus being selected from a

group consisting of an initial request to perform a memory operation, a snoop

response, and a read response **{Page 5, lines 5-7} {not explicitly illustrated in the**

figures}.

8.   The apparatus of claim 4, wherein said program code for monitoring said at

least one input of said agent for said stimulus comprises program code for

identifying said stimulus using correlative information in said stimulus **{Page 28,**

lines 2-13} {not explicitly illustrated in the figures}.

11.   The apparatus of claim 4, wherein said program code for monitoring said at

least one input of said agent for said stimulus comprises program code for

gathering said stimulus from a plurality of separately transmitted portions **{page**

21, lines 7-24} {not explicitly illustrated in the figures}.

13. The apparatus of claim 4, wherein said program code for creating a

transaction record comprises program code for creating a transaction record to

contain information relating to a memory transaction involving said agent {**Page 4,**

lines 17-20; Page 5, lines 12-20; Page 6, lines 9-11; Page 6, line 33 to Page 7,

line 6} {not explicitly illustrated in the figures}.

15. The apparatus of claim 4, wherein said program code for producing said

expectation of said event comprises program code for storing expected data

associated with said expectation, said expected data being received in a plurality of

separate incoming transmissions in said stimulus, said expected data being

expected to be transmitted by said agent in a plurality of separate outgoing

transmissions in said event {**Page 21, lines 7-25} {not explicitly illustrated in the**

figures}.

24. The method of claim 1, where the step of signaling an error further

comprises signaling an error when said expected output does not occur within a

predetermined time {**Page 18, lines 23-26} {not explicitly illustrated in the**

figures}.

1   25.   The method of claim 1, where the step of signaling an error further

2   comprises signaling an error when no transaction record can be identified for an

3   output **{Page 7, lines 25-29; page 18, lines 2-4} {not explicitly illustrated in the**

4   **figures}**.

5

6   26.   The method of claim 1, where the step of signaling an error further

7   comprises signaling an error when a transaction record for an output is not

8   recognized **{Fig. 4, 94} {Page 7, lines 30 - 34; Page 21, lines 26-30}**.

9

10   27.   The method of claim 1, where the step of signaling an error further

11   comprises signaling an error when a transaction record for an output signal

12   corresponds to said transaction record corresponding to said input signal, but said

13   output signal is not expected **{Fig. 2, 66} {Page 19, lines 25-27}**.

14

15   28.   The method of claim 1, where the step of signaling an error further

16   comprises signaling an error when a transaction record for an output signal

17   corresponds to said transaction record corresponding to said input signal, but said

18   output signal is generated before said input signal is complete **{Fig. 4, 96} {Page**

19   **21, line 32 through Page 22, line 2}**.

20

APPENDIX (C)

MEANS OR STEP PLUS FUNCTION ANALYSIS

22.   An apparatus for testing an agent {**Fig. 1, 12**} in a computer system,

comprising:

means for detecting {**not explicitly illustrated in the figures**} at least

one incoming message as it is received by said agent {**Page 4, lines 13-16**};

means for generating {**not explicitly illustrated in the figures**} a

transaction record {**Page 4, lines 17-20; Page 5, lines 12-20; Page 6, lines

9-11; Page 16, lines 11-13**} corresponding to said incoming message;

means for generating {**not explicitly illustrated in the figures**} at

least one expected outgoing message, correlated to said transaction record

{**Page 4, lines 17-26; Page 6, lines 9-11**}, that should be produced by said

agent in response to said incoming message, wherein said at least one

expected outgoing message is generated at least in part based on said at least

one incoming message; and

means for signaling {**not explicitly illustrated in the figures**} an

error when said agent does not generate said expected outgoing message

corresponding to said transaction record {**Page 7, lines 25-34; Page 18,**

1   lines 3-4, lines 23-26; Page 19, lines 25-27; Page 21, lines 26-30; Page 21,

2   line 32 to Page 22, line 2}.

3

1

2 **<u>APPENDIX (D)</u>**

3 **<u>EVIDENCE</u>**

4 None

5

6

1

2 **<u>APPENDIX (E)</u>**

3 **<u>RELATED CASES</u>**

4 None